

# MERCER

Investment Consulting

February 18, 2005

## **Total Fund Review – Fourth Quarter Board Meeting**

### Arizona State Retirement System

**Terry A. Dennison**

Los Angeles



Marsh & McLennan Companies



# **Economic Environment**

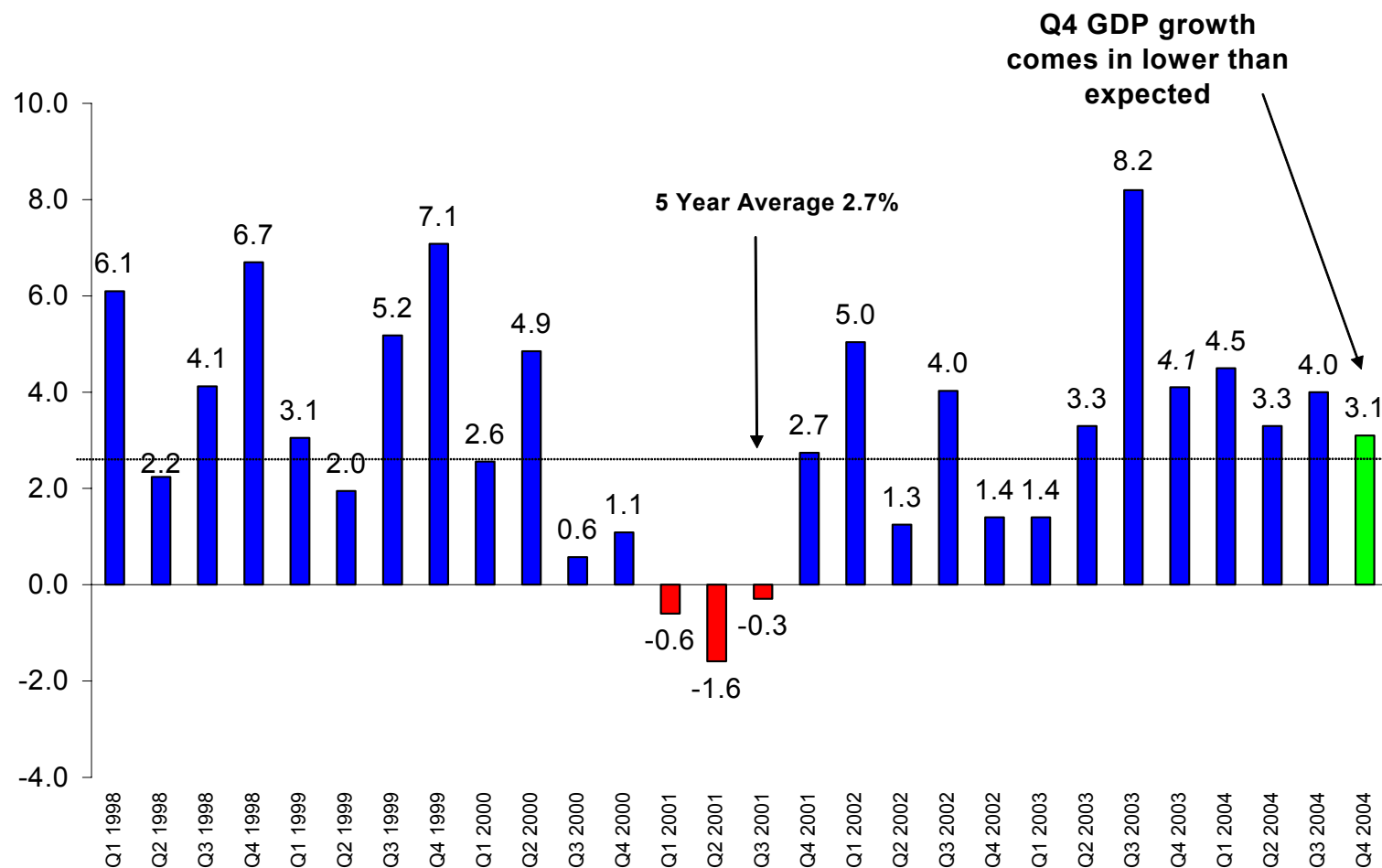
# **Economic Growth Was Steady And Moderate During 2004; Q4 GDP Growth Was Well Below Estimates**

- The US economy continues to produce steady, moderate growth around its long-term average level.
- There are some signs of weakness in the economy. Earnings growth is starting to fall and the yield curve flattened, both of which are potential harbingers of a slowing economy in the months ahead. Productivity growth has slipped from its high growth rates of 2001–2003.
- However, the overall picture is positive. Industrial production increased 4.4% in 2004, with December's number quite strong at 0.8%. Just today, consumer confidence came in much higher than expected. Finally, the federal budget statistics for December and the fourth quarter were better than expected, indicating that underlying growth is solid.

# **Economic Growth Was Steady And Moderate During 2004; Q4 GDP Growth Was Well Below Estimates**

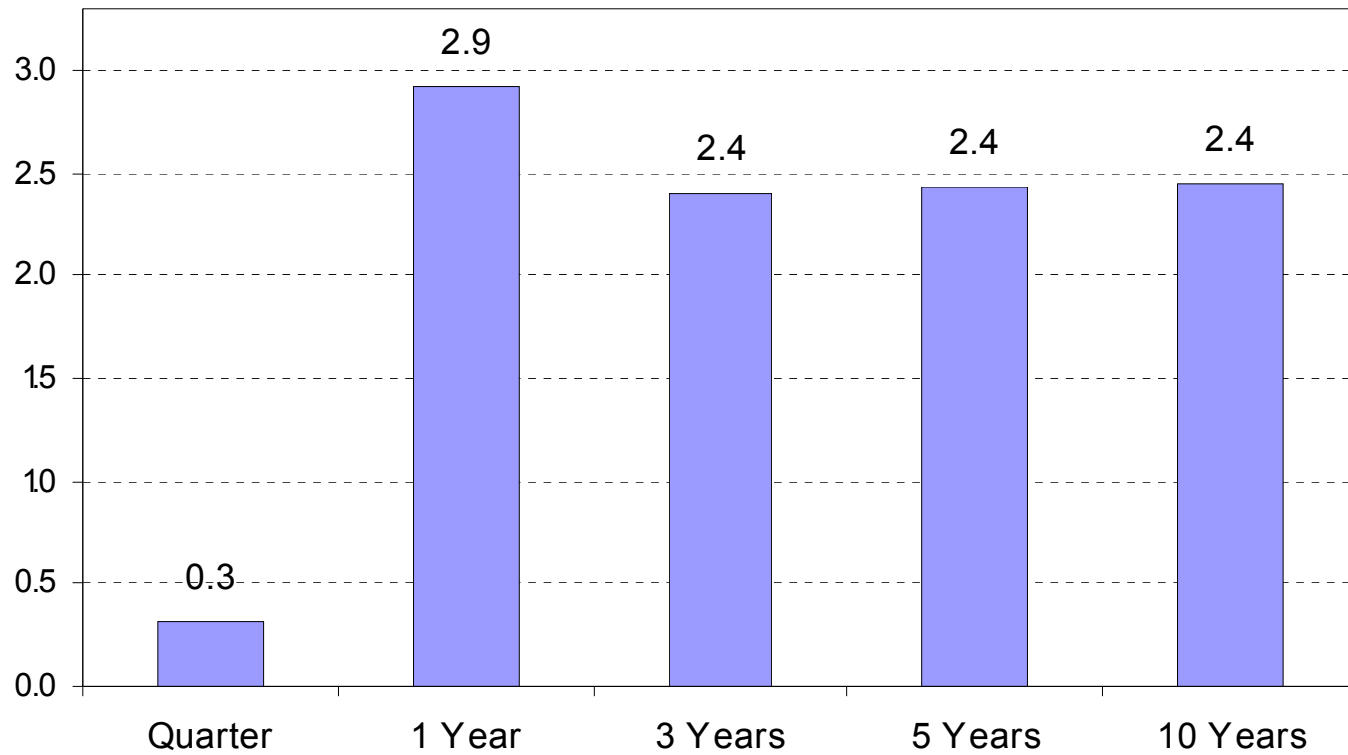
- The issue of the day for the capital markets in the fourth quarter was the US dollar. The dollar fell swiftly against the euro by 10% in a matter of months, though by other currencies it fell more modestly. Lately, concerns about the dollar have declined as growth remains steady and European growth is weak.
- Employment growth is still substandard for a recovery, but starting to fall in line with recoveries at this phase.
- Oil remains a big wild card. After peaking at around \$55/barrel in late October, oil prices fell to the low \$40s before spiking back up in January to \$48.

# GDP Shows 7 Consecutive Quarters At or Above 5-Year Average



# Inflation Continues to Be Moderate

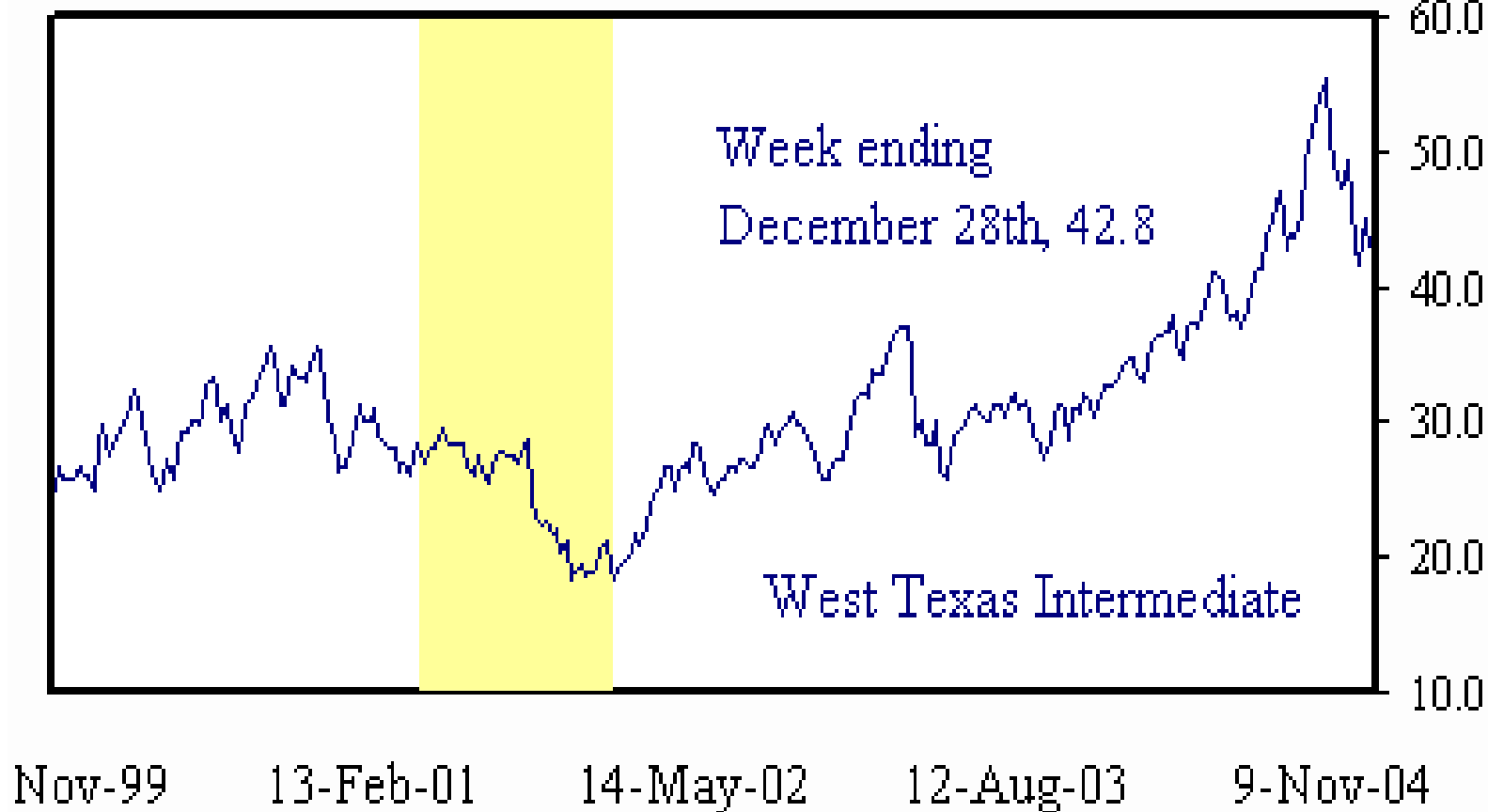
Consumer Price Index (% Change)



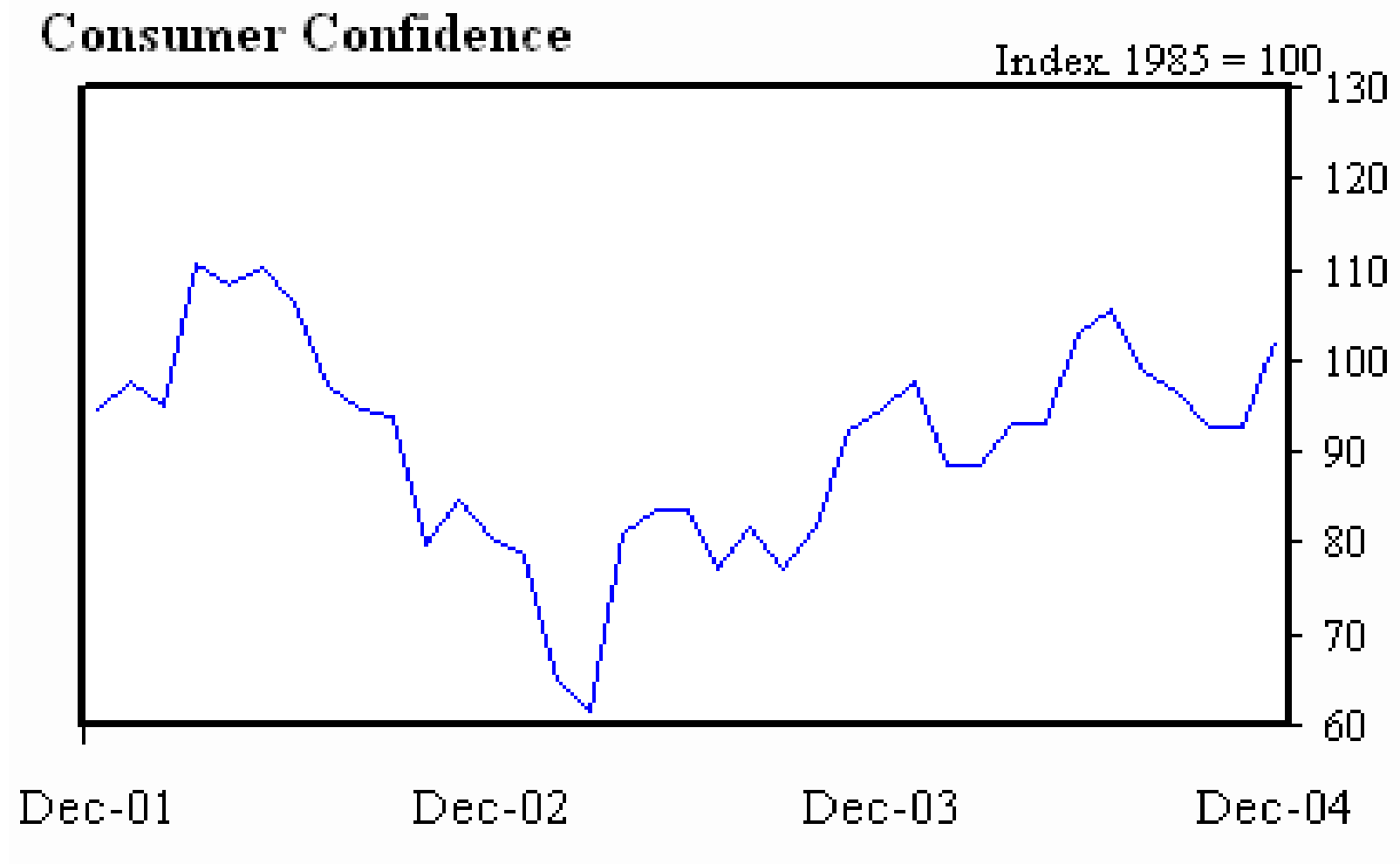
# Crude Oil Prices Declined at the End of the Quarter

Domestic Spot Oil Price

Dollar/Barrel



# Consumer Confidence Rebounded

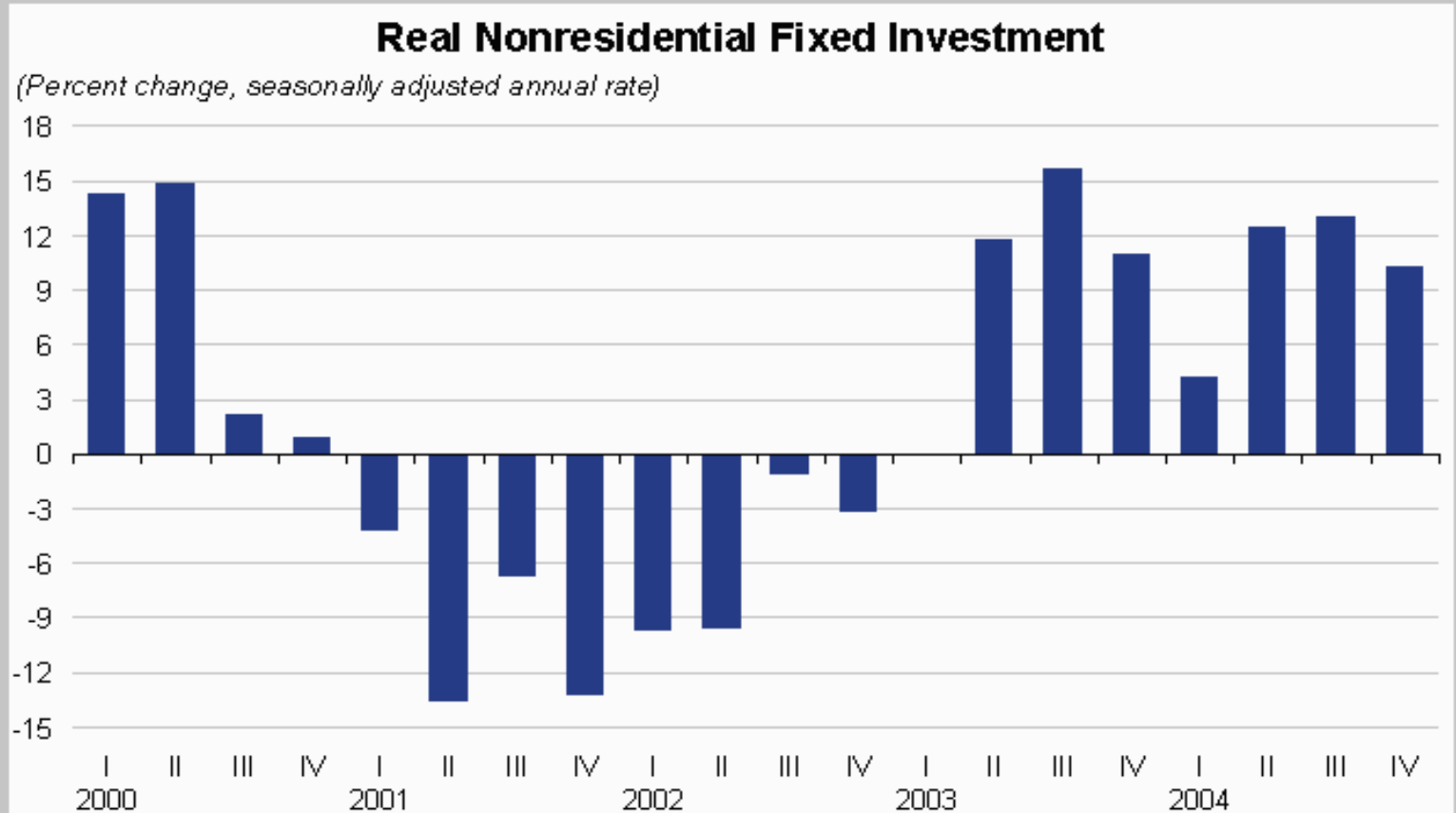




# Civilian Unemployment Rate Declined



# Business Investment Holds Steady



U.S. Bureau of Economic Analysis

# Inflation: The Pleasant Surprise

- The inflation numbers were extremely good in the second half of 2004. The quarterly inflation rates of CPI changes in 2004 were:

<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>	<u>2004</u>
1.7%	1.2%	0.1%	0.2%	3.3%

- Inflation expectations as measured by the difference between real and nominal bond yields rose in the fourth quarter from 2.4% to 2.6%, but ebbed back to 2.5% in late January.
- Other measures of inflation show a slowdown in the second half of 2004. The PPI was up 4.1% for the year, but only 1.1% in the second half of 2004. Through September the PCE Price Index (a Fed favorite), was up 1.9%, but up only 0.3% in the fourth quarter.
- Going forward, we see no reason to budge from our long-term inflation assumption of 2.5% as a reasonable estimate for 2005 inflation.

# The Fed: Likely Further Interest Rate Increases

- As expected, the Federal Reserve raised short term interest rates by a total of 50 basis points during the fourth quarter. The futures market is pricing continued 25 basis point increases throughout the coming months. This market is expecting rates to increase to 3.25% by August. Our Fearless Forecast participants projected the Fed Fund rate to rise to 3.2% by the end of the year.
- On the other hand, based on the last six months of inflation, we now have positive real rates again. Raising rates too quickly or too much would hurt our leveraged economy.
- However, the Fed would like to be preemptive about inflation. It has succeeded wonderfully over the last 25 years in bringing inflation down from over 10% to its current level. Also, the Fed would like to create some ammunition should the economy start to slide later this year.

# Long Interest Rates Continue to Surprise

- Long interest rates continue to baffle the market. We see some analysts projecting 5.5%, even 6.0.% 10-year Treasury yields.
  - The only way this could happen is if growth accelerates back up to 4.5% and inflation shoots up to 3% or 4%.
    - We just don't see that combination happening right now.
- Instead, we expect a more modest rise in long term rates. A 10-year yield of 4.5% to 4.9% is quite consistent with the underlying economic data.
- Corporate spreads are extremely low, reflecting the improved balance sheets of the private sector.
  - They should rise back up to their historic averages over the year.



# **Securities Markets**

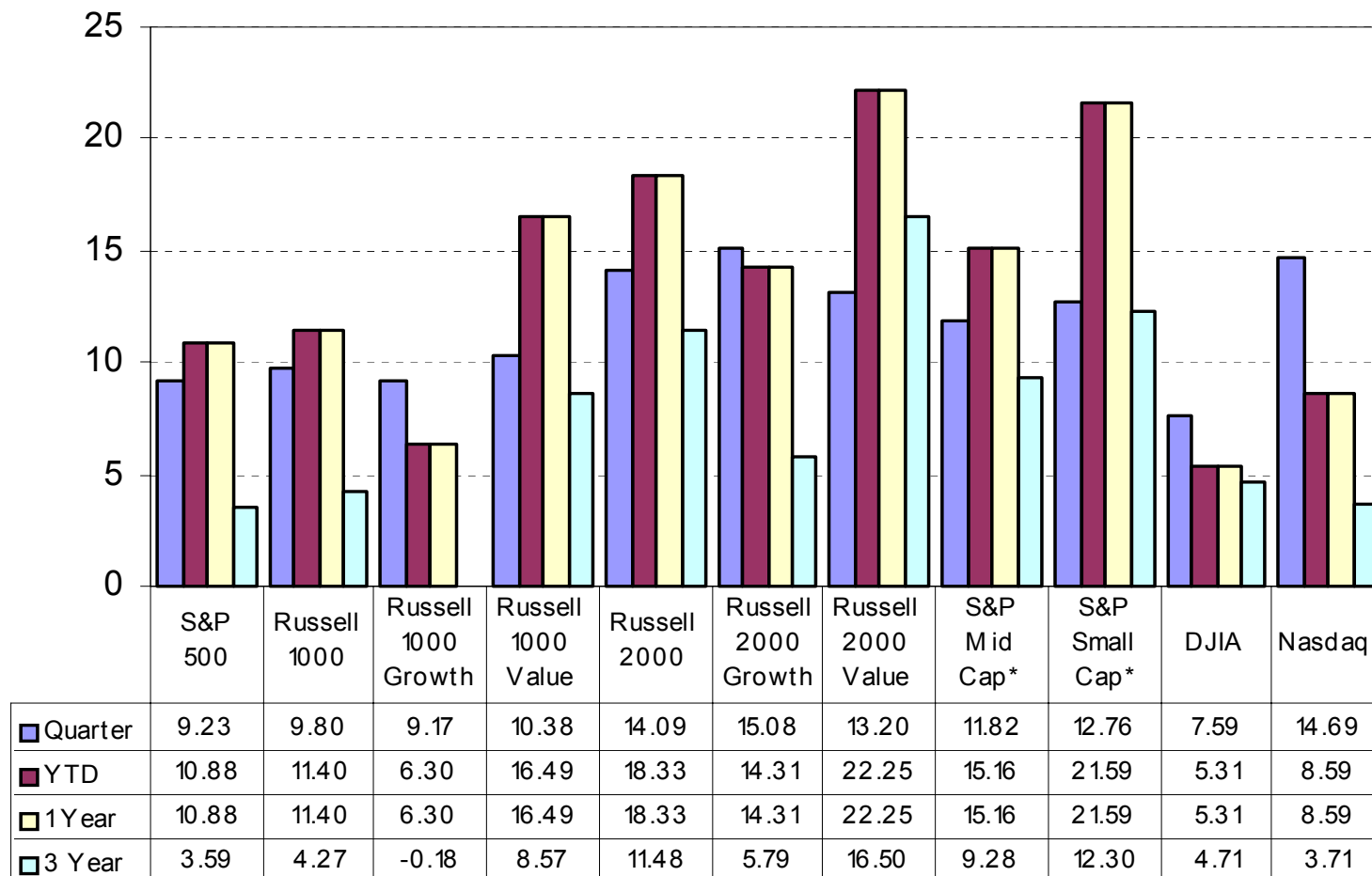
# US Equity Markets

## Fourth-Quarter Rally Leaves US Equities With Double-Digit Gains in 2004

- Domestic equities surged during the fourth quarter, when the US election concluded smoothly, oil prices softened, and M&A activity increased.
  - The S&P 500 Index finished the fourth quarter up 9.2% and gained 10.9% on the year.
  - Small caps continued to soar in 2004, outpacing large caps for the sixth year in a row.
    - After a return of 47.3% in 2003, the Russell 2000 gained 14.1% during Q4 and 18.3% for the year.
- Among large caps, value stocks outpaced growth stocks for the fifth consecutive year.
- Technology stocks rotated back to sector leadership in Q4, as investors became less defensive. However, technology finished as one of the worst-performing sectors of 2004.

# US Equity Markets

## Index Performance





# Very Strong Returns for Every Market Segment

- Double-digit returns for all but Large Core and Large Growth.
- Small cap growth was the best performer for the quarter.

4Q04 Returns	Value	Core	Growth
<b>Large</b>	<b>10.37</b>	<b>9.79</b>	<b>9.16</b>
<b>Mid</b>	<b>13.44</b>	<b>13.66</b>	<b>13.95</b>
<b>Small</b>	<b>13.18</b>	<b>14.08</b>	<b>15.07</b>
Note: Russell 1000, Mid-Cap, 2000 Indices: Value, Core, Growth			

# One-Year Returns Are Excellent

- Large cap growth improves but continues to lag the broad market.
- Value is the place to be!

1-Year Returns	Value	Core	Growth
Large	16.48	11.40	6.29
Mid	23.63	20.19	15.47
Small	22.25	18.32	14.30

Note: Russell 1000, Mid-Cap, 2000 Indices: Value, Core, Growth

# Three-Year Results Show Wide Variations

- Returns are below long-term expectations for growth.
  - Large Cap Growth is negative.
- Value is superior to other styles.

3-Year Returns	Value	Core	Growth
Large	8.57	4.29	-0.17
Mid	15.54	12.18	6.17
Small	16.54	11.51	5.82

Note: Russell 1000, Mid-Cap, 2000 Indices: Value, Core, Growth

# Cumulative Three-Year Results Are Strong

- Returns for all but large cap growth are excellent.
- Small value stocks increased by more than 58%!

Cumulative 3-Yr	Value	Core	Growth
Large	27.98	13.43	-0.51
Mid	54.24	41.17	19.68
Small	58.28	38.66	18.50

Note: Russell 1000, Mid-Cap, 2000 Indices: Value, Core, Growth

# Five-Year Results Show Wide Variations

- Returns are negative for growth.
  - Large Cap Growth is very negative.
- Value, particularly small value, is superior to other styles.

5-Year Returns	Value	Core	Growth
Large	5.24	-1.75	-9.28
Mid	13.46	7.60	-3.35
Small	17.29	6.66	-3.54

Note: Russell 1000, Mid-Cap, 2000 Indices: Value, Core, Growth

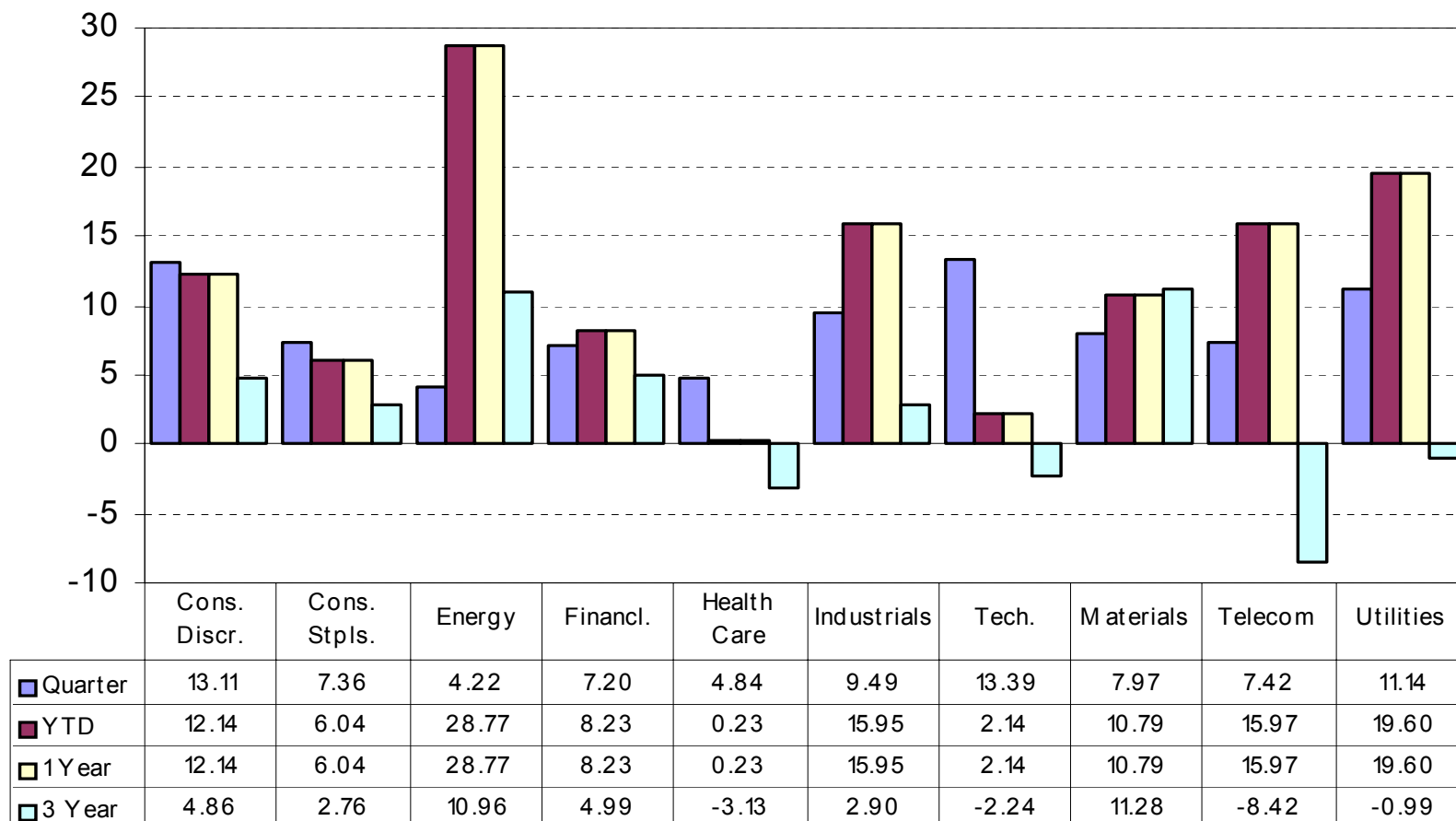
# Cumulative Five-Year Results Extremely Different Depending on Market Segment

- Large growth stocks lost nearly 40% of their value.
- Small value stocks increased by more than 120%!

Cumulative 5-Yr	Value	Core	Growth
Large	29.09	-8.45	-38.55
Mid	88.02	44.23	-15.66
Small	121.98	38.04	-16.49
Note: Russell 1000, Mid-Cap, 2000 Indices: Value, Core, Growth			

# US Equity Markets

## Sector Returns



# US Equity Markets

## Top Positive and Negative Contributors

S&P 500 Fourth Quarter Return: 9.2%

### 25 Largest Positive Contributors to the S&P 500

Stock	Return (%)	End of Quarter Weight	Rank
GENERAL ELEC CO	9.35%	3.44%	1
ALTRIA GROUP INC	31.44%	0.94%	15
MICROSOFT CORP	7.78%	2.91%	3
CITIGROUP INC	10.11%	2.22%	4
JOHNSON & JOHNSON	13.09%	1.62%	8
INTERNATIONAL BUSINESS MAC	15.19%	1.38%	10
INTEL CORP	16.80%	1.23%	11
EXXON MOBIL CORP	6.62%	3.02%	2
BANK OF AMERICA CORPORATIO	9.49%	1.70%	7
DELL INC	18.37%	0.86%	19
EBAY INC	26.54%	0.58%	27
TIME WARNER INC	20.51%	0.72%	23
ORACLE CORP	21.63%	0.56%	33
COMCAST CORP NEW	17.85%	0.61%	28
UNITED PARCEL SERVICE INC	12.93%	0.82%	21
DISNEY WALT CO	24.35%	0.44%	47
TYCO INTL LTD NEW	16.89%	0.60%	30
APPLE COMPUTER INC	66.19%	0.15%	94
MERRILL LYNCH & CO INC	20.53%	0.45%	48
UNITEDHEALTH GROUP INC	19.38%	0.47%	45
AMGEN INC	12.92%	0.70%	26
CARNIVAL CORP	22.18%	0.37%	58
FEDERAL NATL MTG ASSN	13.14%	0.59%	35
CISCO SYS INC	6.74%	1.16%	14
WACHOVIA CORP 2ND NEW	13.01%	0.60%	36

### 25 Largest Negative Contributors to the S&P

Stock	Return (%)	End of Quarter Weight	Rank
PFIZER INC	-11.57%	2.23%	6
MARSH & MCLENNAN COS INC	-27.36%	0.23%	155
AMERICAN INTL GROUP INC	-3.30%	1.72%	9
BOSTON SCIENTIFIC CORP	-10.52%	0.33%	81
LILLY ELI & CO	-4.90%	0.66%	37
MEDTRONIC INC	-4.30%	0.61%	42
AVON PRODS INC	-11.08%	0.20%	141
CHIRON CORP	-24.59%	0.08%	357
MOTOROLA INC	-4.43%	0.41%	63
ALCOA INC	-6.01%	0.28%	88
CHEVRONTEXACO CORP	-1.36%	1.10%	17
AON CORP	-16.46%	0.09%	321
JPMORGAN & CHASE & CO	-0.96%	1.37%	13
COUNTRYWIDE FINANCIAL CORP	-5.74%	0.22%	117
MARATHON OIL CORP	-8.21%	0.14%	210
GENERAL MTRS CORP	-4.52%	0.23%	111
MERCK & CO INC	-1.45%	0.71%	31
SYMANTEC CORP	-6.12%	0.17%	167
WAL MART STORES INC	-0.47%	2.18%	5
GILEAD SCIENCES INC	-6.39%	0.16%	178
BJ SVCS CO	-11.05%	0.08%	326
BIOMET INC	-7.44%	0.12%	241
FIFTH THIRD BANCORP	-3.19%	0.27%	91
FIRST DATA CORP	-2.16%	0.35%	74
UNIVISION COMMUNICATIONS INC	-7.40%	0.10%	268

Utilities

Cons. Non  
Durables/Services

Cap Goods

Financials

Health Care

Basic Inds

Info. Tech

Energy

Cons Durables

Transportation



# **Non-US Equity Markets**

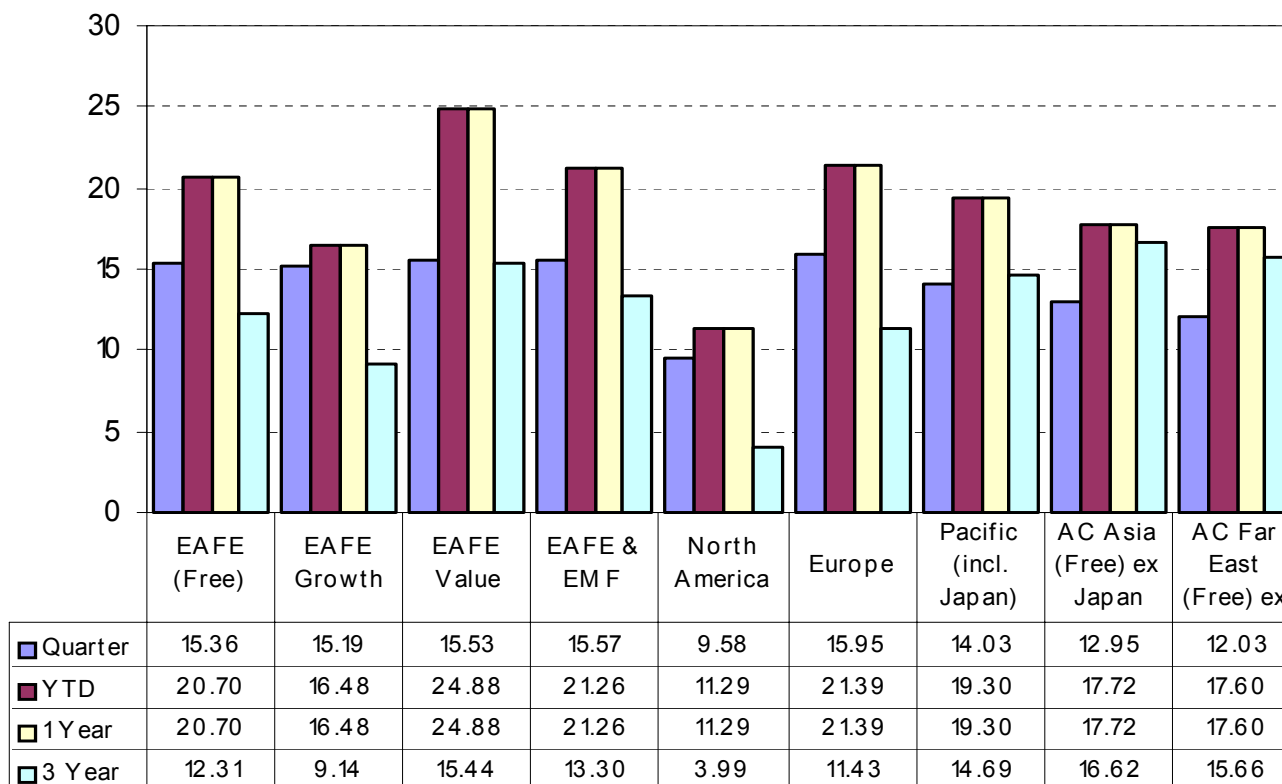
## **International Markets Outperform Domestic Equities for the Third Consecutive Year**

- The MSCI EAFE Index returned 15.4% and 20.7% for the fourth quarter and 2004, respectively, following a strong performance of 39.2% in 2003.
- Strong relative performance among international stocks was due in large part to foreign currency appreciation versus the US dollar.
- Growth and value stocks fared equally well during the quarter, but value stocks outperformed by a wide margin over the year.
- Over the trailing five-year period, international value stocks have outperformed their growth counterparts by nearly 10% on an annualized basis.
- The major countries of the EAFE Index (Japan, the UK, Germany, France, and Switzerland) all posted double-digit returns for the quarter and the year.

# Non-US Equity Markets

## EAFE Regional Performance

MSCI Regional Index Returns (US\$)



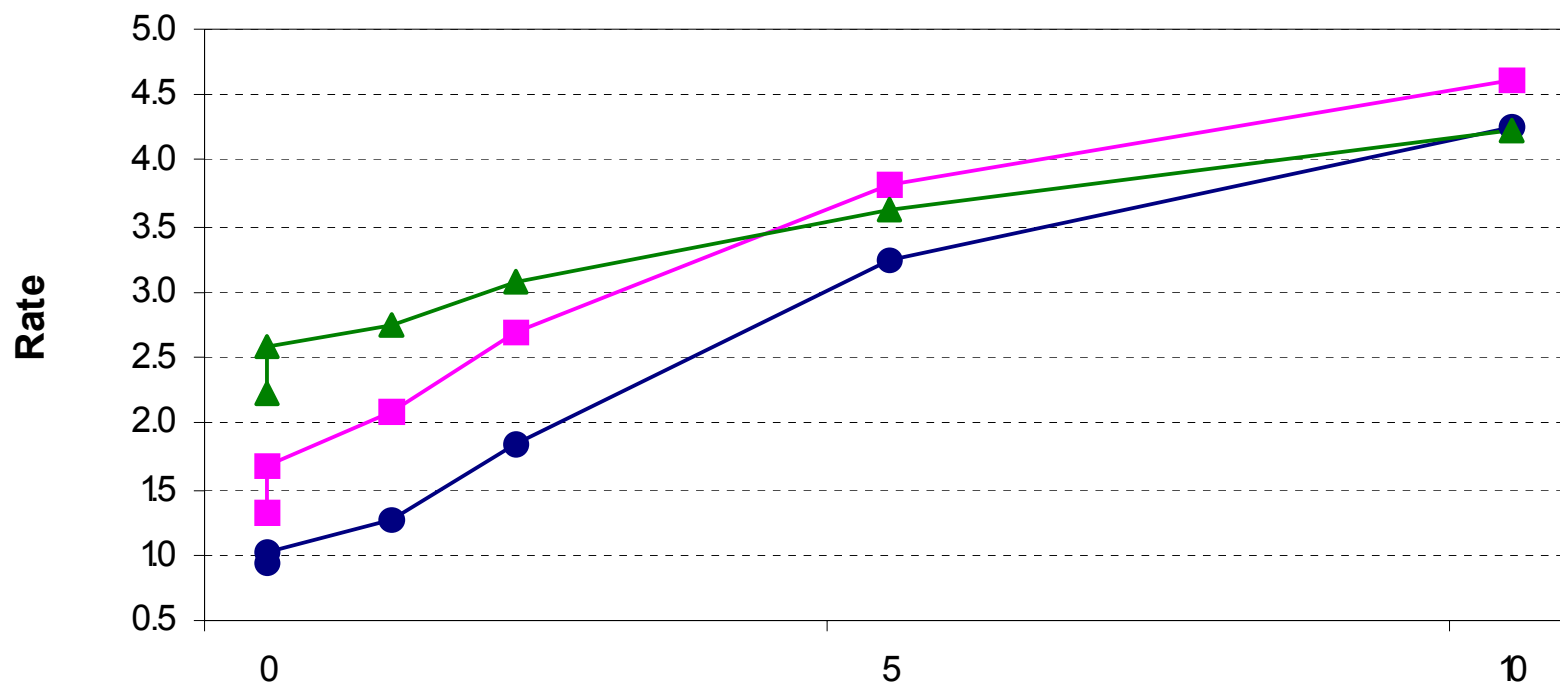
# Fixed Income Markets

## Despite Predictions of Rising Yields in 2004, Bonds Post Modest Gains During Q4 and for The Year

- The yield curve flattened during the year, with the short end of the curve rising 125 basis points and the long end actually falling 22 basis points.
  - The middle of the curve, however, remained steady, with the yield on the 10-year Treasury rate falling only 3 basis points during the year to finish 2004 with a yield of 4.22%.
- The LB Aggregate Index gained 1.0% and 4.3% for Q4 and 2004 respectively.
- Particularly surprising were the gains at the long end of the curve, given the spike in oil prices, strong economic growth, a weak dollar, and five consecutive interest rate hikes by the Federal Reserve.
  - The Lehman Long Gov/Corp Index advanced 2.2% during the quarter and finished 2004 with a gain of 8.6%.

# Yield Curve Flattened

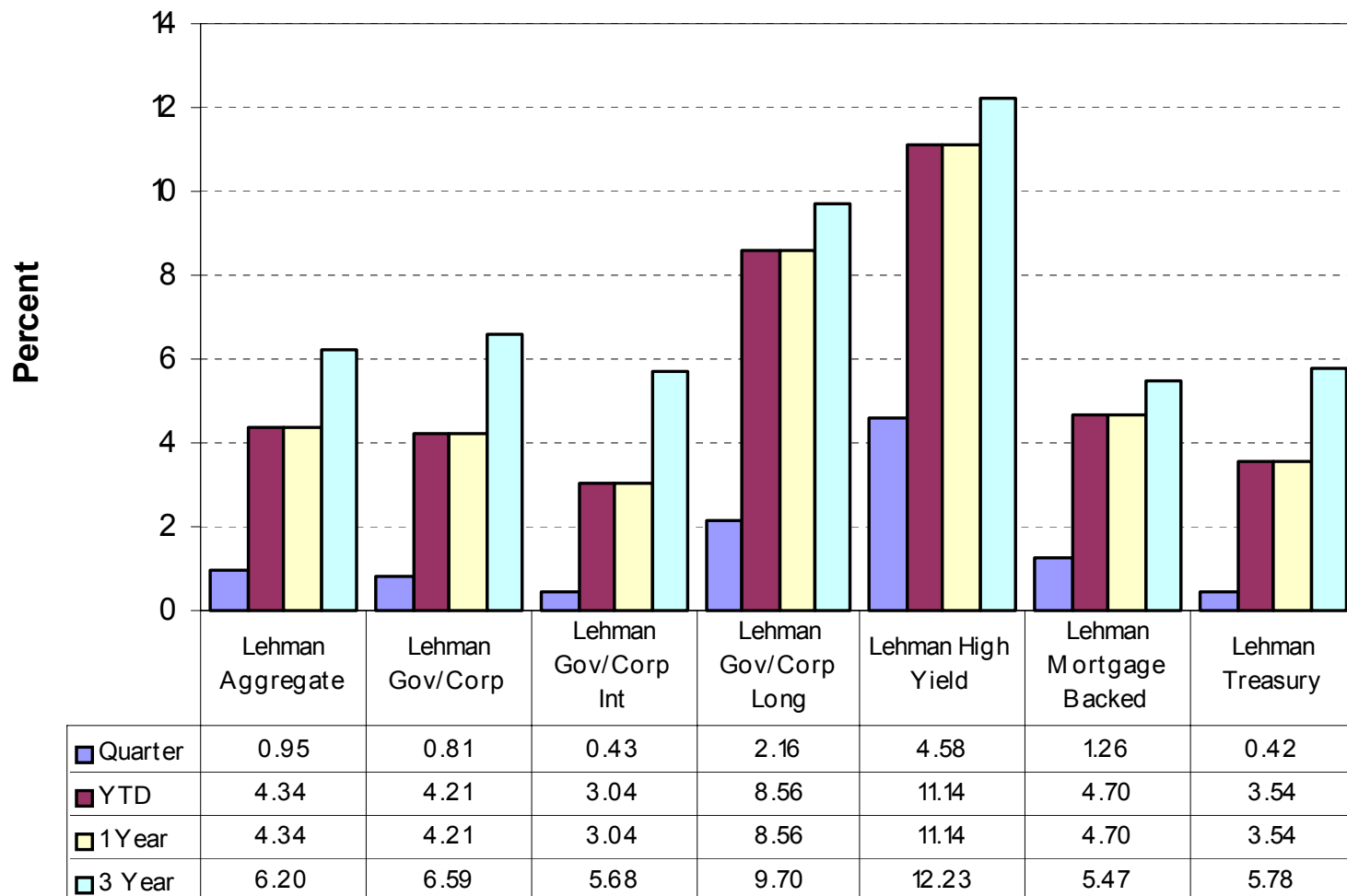
Short Rates Rose 250 bps While Long Rates Were Unchanged



Years	0.25	0.5	1	2	5	10
Dec-03	0.95	1.02	1.26	1.84	3.25	4.27
Jun-04	1.33	1.68	2.09	2.7	3.81	4.62
Dec-04	2.22	2.59	2.75	3.08	3.63	4.24

# Fixed Income Markets

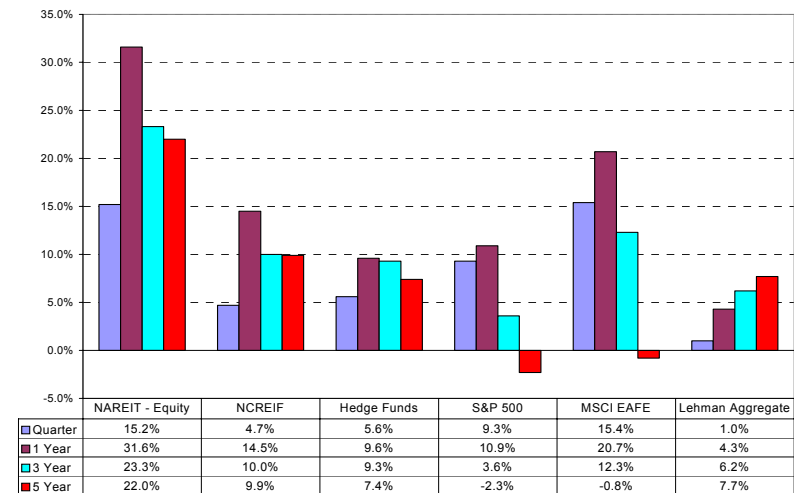
## Index Performance



# Real Estate

## REITs Outperform Domestic Equities for 5th Consecutive Year During 2004

- Real Estate Investment Trusts returned over 15% during the fourth quarter and finished the year with a gain of 31.6%.
- Over the trailing five-year period, REITs have posted an annualized return of 22% versus a loss of 2.3% for the S&P 500.
- Investments in private real estate, as measured by the NCREIF Index, have also been quite strong, returning 4.7% during Q4, 14.5% for the year, and 9.9% over the trailing five-year period.



# Mercer IC's Capital Market Assumptions

## January 2005 Expected Long-Term Return and Risk Assumptions

Asset Class	Mercer Current Assumptions		Mercer Historical Assumptions			
	Expected Return January 2005	Standard Deviation	Expected Return January 2004	Expected Return January 2003	Expected Return January 2002	Expected Return January 2001
<b>US Equities</b>						
All Cap	8.2%	18.6%	8.3%	8.3%	9.5%	9.5%
Large Cap	8.0%	18.0%	8.0%	8.0%	9.3%	9.3%
Small Cap	8.4%	24.0%	8.6%	8.6%	8.8%	10.0%
<b>International Equities</b>						
World x-US	8.4%	21.5%	8.5%	8.5%	8.8%	9.9%
Developed Markets	8.2%	21.9%	8.3%	8.3%	8.5%	9.5%
Emerging Markets	8.6%	28.0%	8.7%	8.7%	9.0%	10.1%
<b>US Fixed Income</b>						
Aggregate	4.9%	6.0%	4.5%	4.5%	4.5%	6.4%
High Yield	5.5%	12.0%	5.9%	5.9%	7.5%	8.8%
Inflation Indexed Bonds	4.2%	4.5%	4.0%	4.0%	5.0%	6.3%

# **ASRS Total Fund Performance**



# Total Fund Performance

## For Periods Ending December 31, 2004

	<u>Quarter</u>	<u>1 Year</u>	<u>3 Years</u>	<u>5 Years</u>	<u>Inception</u>
Total Fund	8.4%	11.5%	6.9%	2.4%	11.1%
Benchmark*	7.8	10.6	6.2	1.3	9.4
R/M Public Funds Median	8.4	13.0	8.4	3.9	—
Percentile Ranking	56	87	96	100	

\* Interim Benchmark of 56% S&P 500/28% LB Aggregate/16% EAFE, which incorporates a proration of 6% real estate.

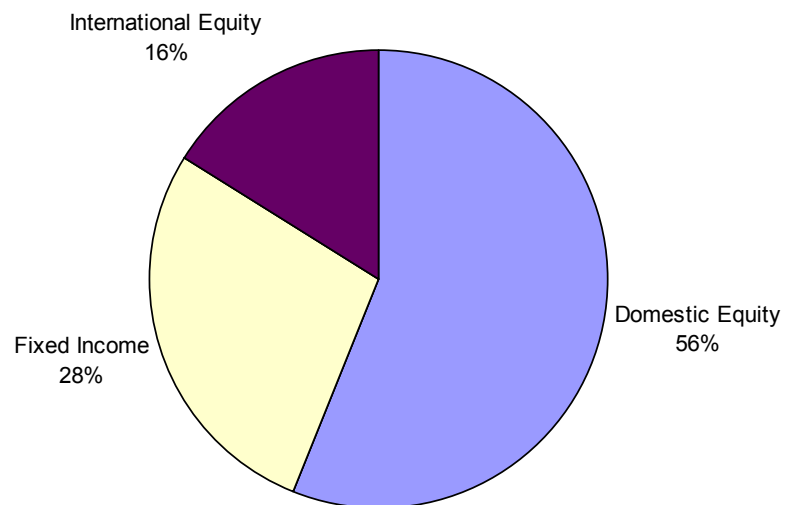
### Policy History:

- 1/1/89-12/31/91 – 60% S&P 500/40% LB Aggregate
- 1/1/92-12/31/94 – 50% S&P 500/40% LB Aggregate/10% EAFE
- 1/1/95-6/30/97 – 45% S&P 500/40% LB Aggregate/15% EAFE
- 7/1/97-12/31/99 – 50% S&P 500/35% LB Aggregate/15% EAFE
- 1/1/00-9/30/03 – 53% S&P 500/30% LB Aggregate/17% EAFE
- 10/1/03-present – 53% S&P 500/26% LB Aggregate/15% EAFE/6% Custom Real Estate Benchmark.

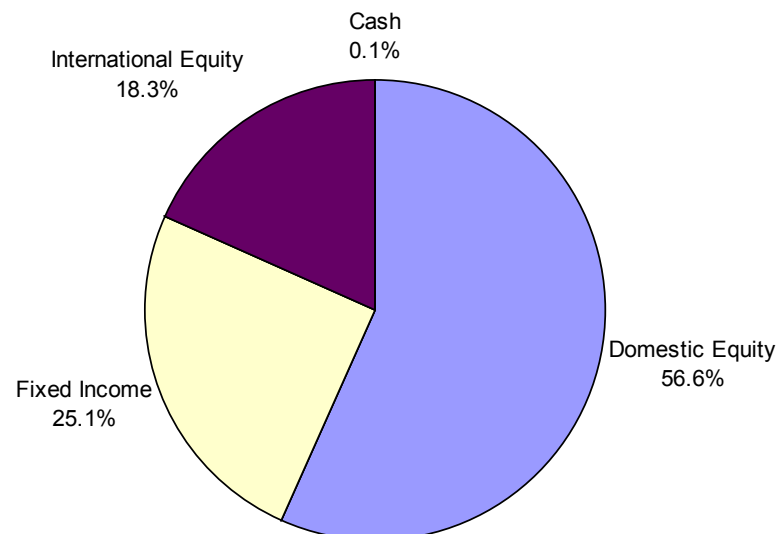
# Total Fund Asset Allocation

## December 31, 2004

**Policy Adjusted for Transition into Real Estate**



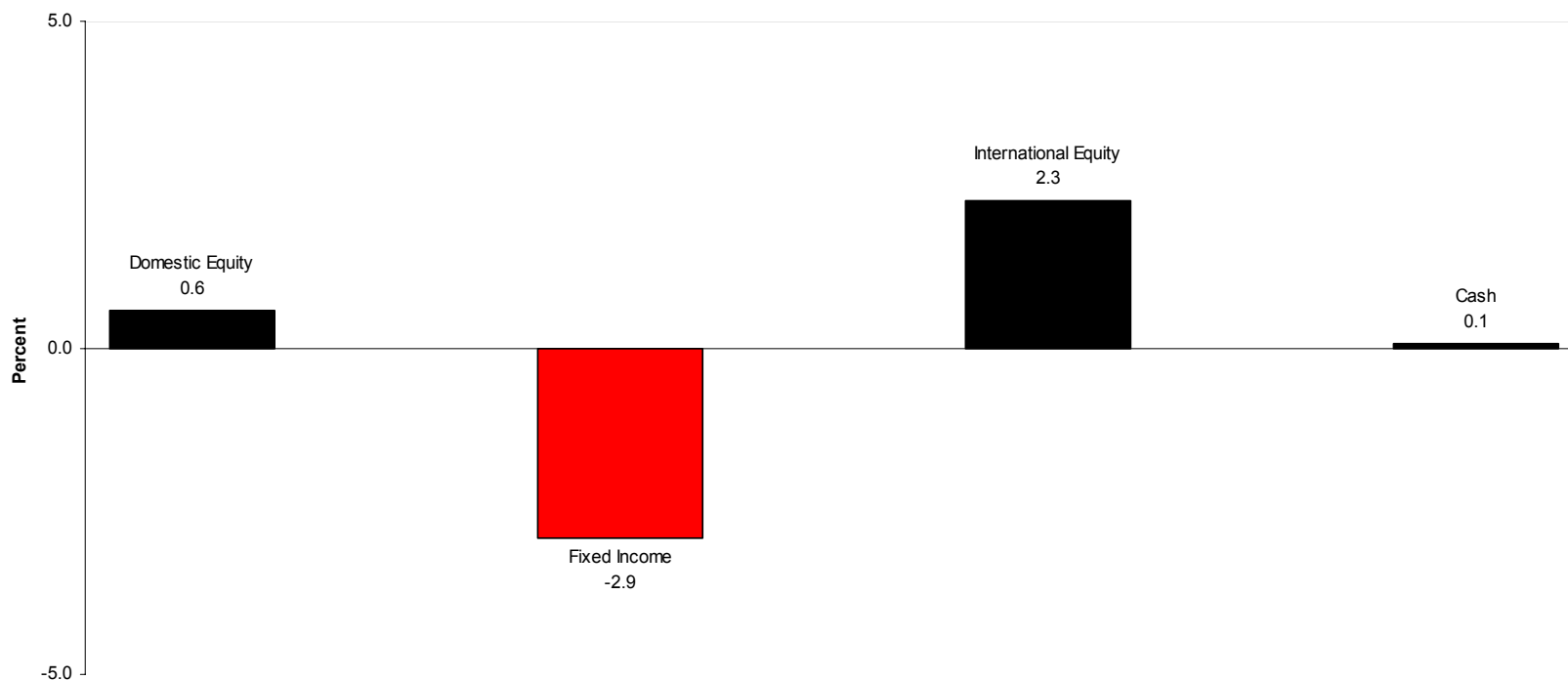
**Actual Asset Allocation**



# Total Fund Asset Allocation

## December 31, 2004

Actual Asset Allocation vs. Policy Adjusted for Transition into Real Estate



# **Total Fund Performance**

## For the Year Ending December 31, 2004

- Measured against:
  - Asset Allocation Target of 8.5% annually
    - Total Fund has outperformed by 3.0%
  - Inflation + 3.0% annually
    - Total Fund has outperformed by 5.2%
  - Actuarial assumption rate of 8.0% annually
    - Total Fund has outperformed by 3.5%

# Total Fund Growth

## Total Fund

Value of \$100 invested in US Balanced from Jan 2000 to Dec 2004



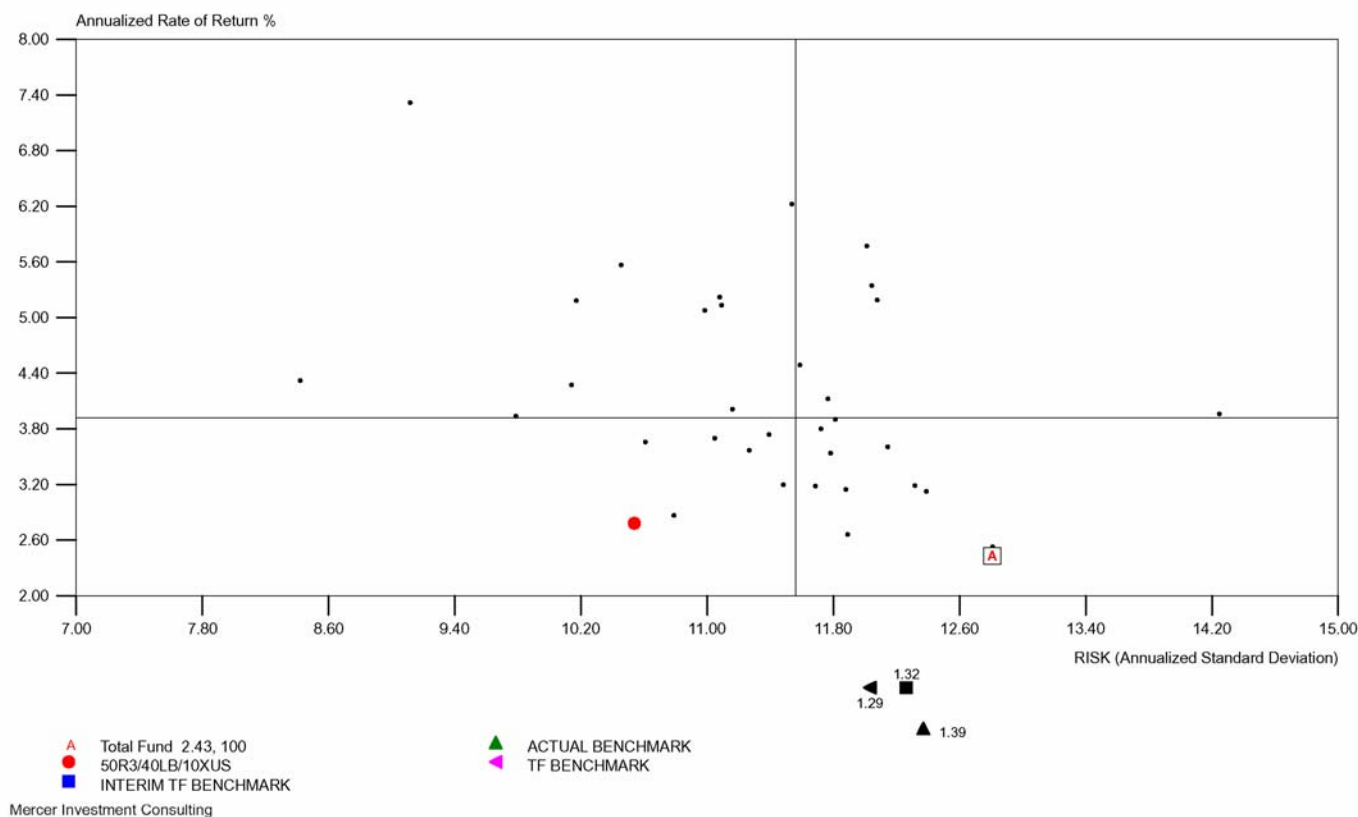
# Total Fund Return/Risk Analysis

## Total Funds Billion Dollar - Public

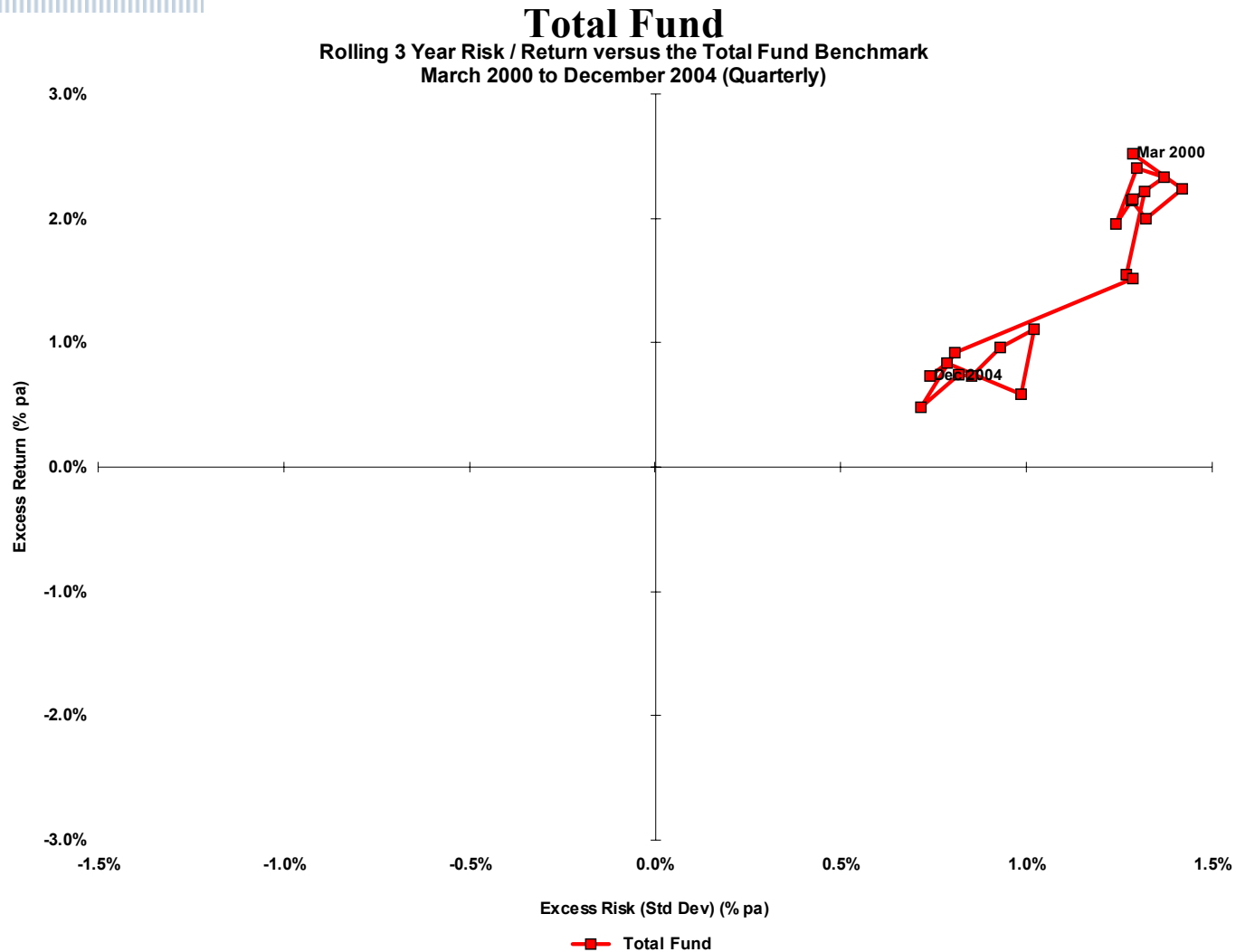
Risk-Return Comparisons

5 Years Ending December 31, 2004

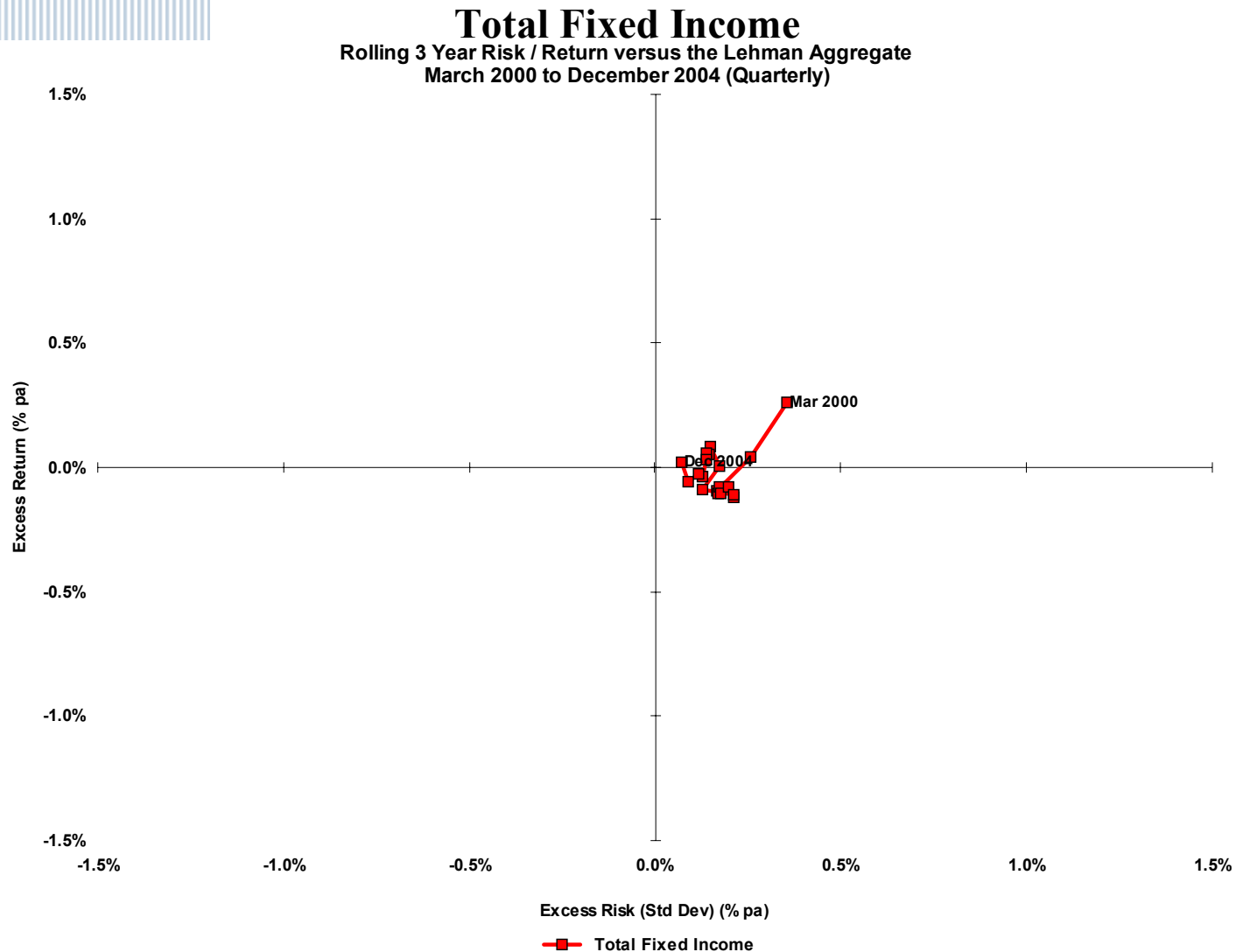
34 Portfolios



# Risk/Return Analysis

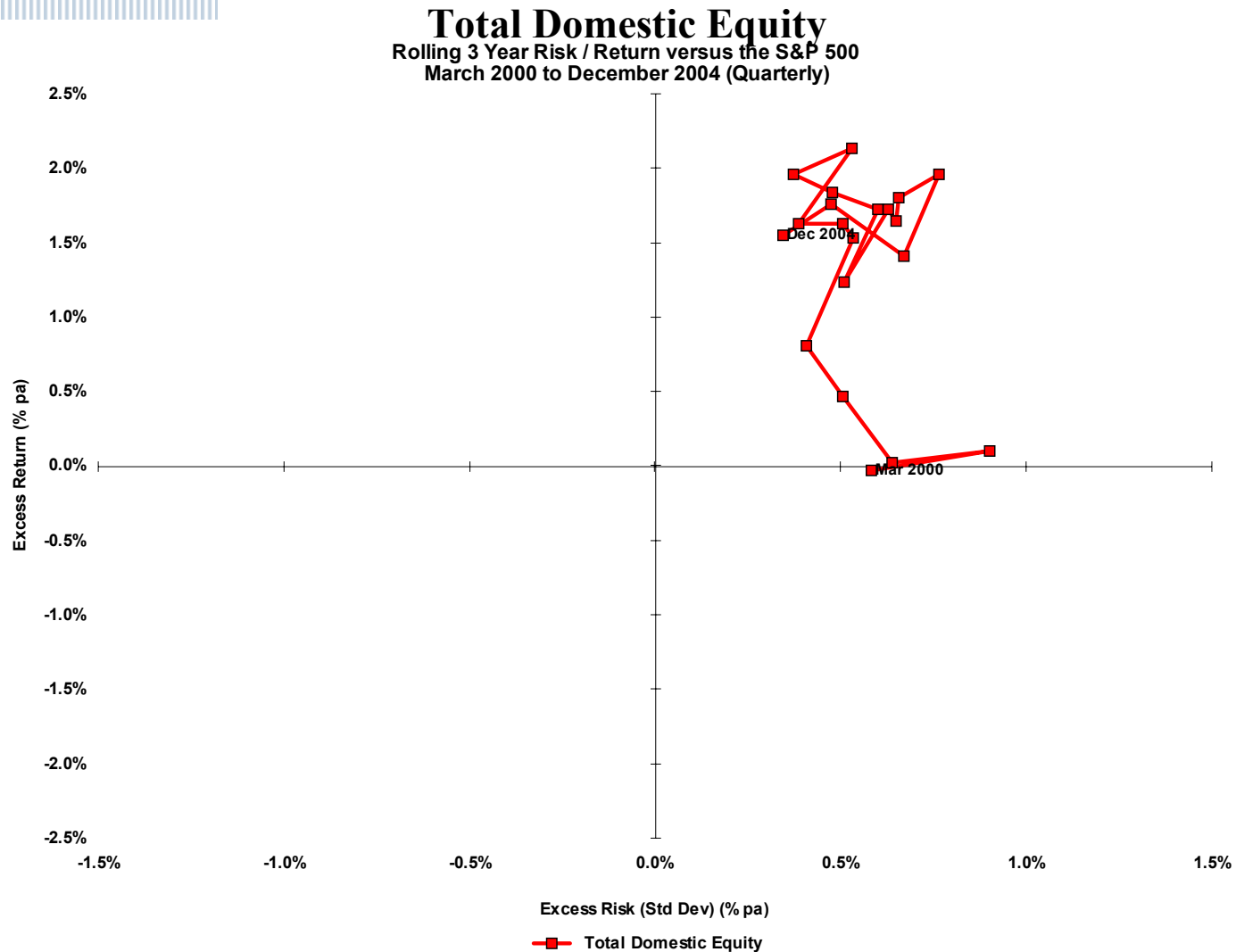


# Risk/Return Analysis

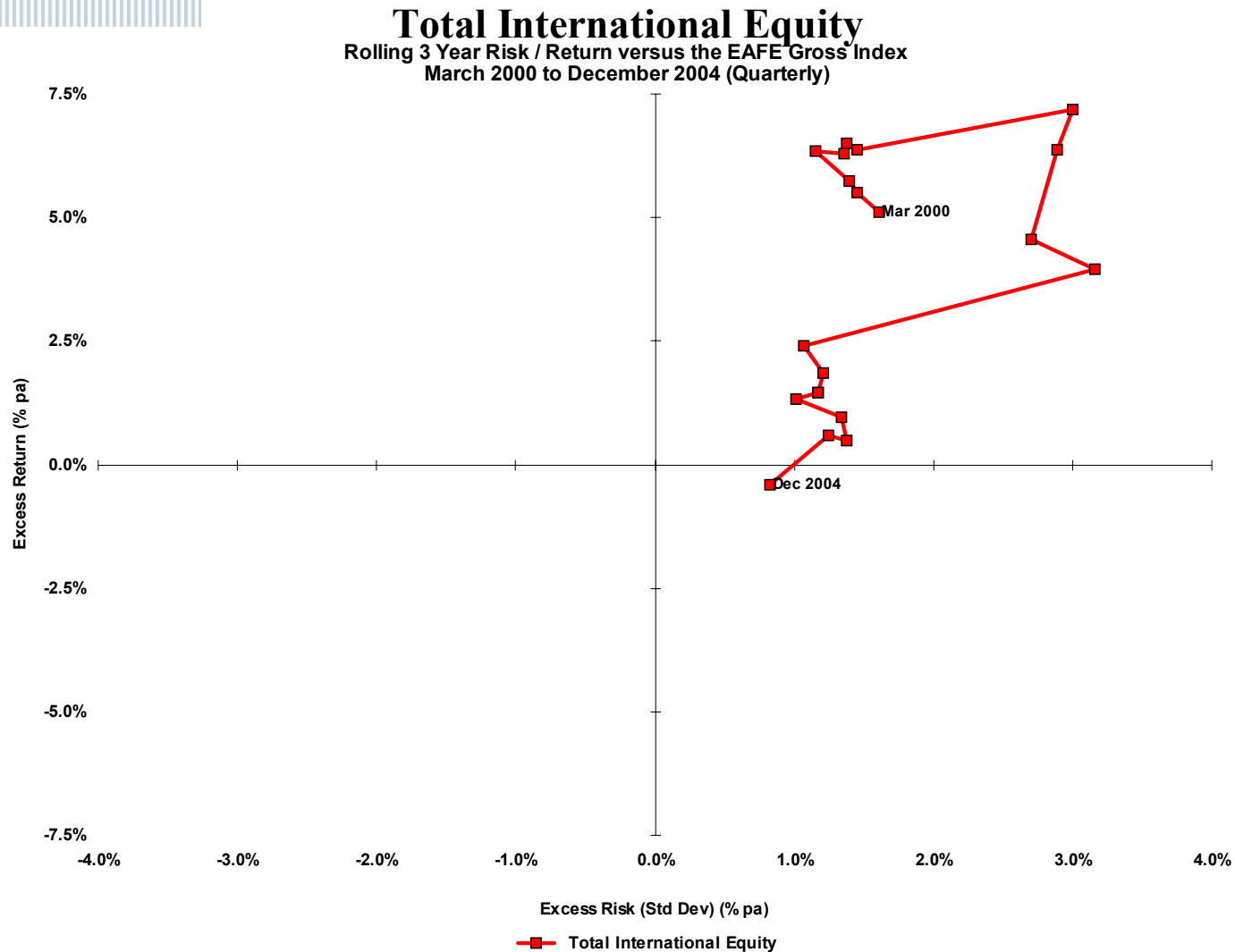




# Risk/Return Analysis



# Risk/Return Analysis



# Performance vs. Benchmarks

## For the 3 Years Ending December 31, 2004

	<u>Return</u>	<u>Assumed ROR</u>	<u>Std. Dev.</u>	<u>Assumed Std. Dev.</u>
Total Fund	6.9%	7.4%	14.0%	13.4%
Benchmark*	6.2		13.4	
Domestic Fixed	6.2	4.5	4.0	6.0
LB Aggregate	6.2		3.9	
Domestic Equity	5.1	8.5	19.7	18.6
S&P 500	3.6		19.3	
Intl. Equity	11.9	8.5	23.0	21.9
EAFE	12.3		22.2	

\* Interim Benchmark of 56% S&P 500/28% LB Aggregate/16% EAFE, which incorporates a proration of 6% real estate.

# Performance vs. Benchmarks

## For the 5 Years Ending December 31, 2004

	<u>Return</u>	<u>Assumed ROR</u>	<u>Std. Dev.</u>	<u>Assumed Std. Dev.</u>
Total Fund	2.4%	7.4%	13.1%	13.4%
Benchmark*	1.3		12.4	
Domestic Fixed	7.8	4.5	3.8	6.0
LB Aggregate	7.7		3.7	
Domestic Equity	-0.3	8.5	19.1	18.6
S&P 500	-2.3		18.5	
Intl. Equity	0.8	8.5	21.0	21.9
EAFE	-0.8		20.6	

\* Interim Benchmark of 56% S&P 500/28% LB Aggregate/16% EAFE, which incorporates a proration of 6% real estate.